

Invert Mini/Empire Axe Eigenbolt Manual



Installation:



1. Remove Bolt and Bolt guide from marker.



2. Remove bumper o-ring at the base of the bolt guide.



3. Slide Eigenbolt spacer onto the bolt guide, locking the interior o-ring or internal rib into the bumper groove in the rearmost position. You should feel the spacer click into place.



4. Ensure there is an -016 xring or oring on the front spacer position.



5. For the Axe, ensure that the rearmost position has either the provided 014 size ring, or the stock bumper o-ring clamping the spacer rear into place.
6. Install stock bolt's rubber face and stock spring onto Eigenbolt.
7. Lubricate the outside of the bolt seal, the bolt guide, and the spacer seals lightly.
8. Reinstall assembly.

Drop-in Tuning (IronyUSA recommended):

Ensure the bolt slides off the front spacer oring with minimal resistance. It needs to seal to provide paint-pinching capability. If this seal is fitted correctly then the rest of the settings should be pretty close to your final settings, though the pressure may run up to 180psi depending on paint fitment.

1. Set back cap (velocity adjuster) to 1.25 turns from all the way in
2. Use the regulator pressure to achieve desired velocity (should be ~165psi @ 300fps)
3. Start at 7ms and drop dwell .5ms at a time until velocity is negatively affected, then go up 1 FULL ms. Running below 6.5ms may negatively affect performance with extended use between maintenance.

As you can see the front oring on the bolt guide in the pics above is a different material than the other 2. This oring gland was built up with Teflon tape so it barely seals on the bolt. The other 2 don't grab much at all. The front one reduces any chance of blowback/ blowby. It is not necessary.

Advanced Tuning and Troubleshooting:

1. Spacer to bolt friction is critical. The stock size is 016, and an X-ring is actually preferred at this time. If you find that the friction between the delrin bolt and the front spacer o-ring is excessive, you can either try a different 016 ring, or even downsize to an 015, but that

is not recommended as it may cause your setup to lose the ability to pinch. I recommend a metal polish assisted break in if you believe your friction in this position is excessive and leading to low velocity or an excess of required dwell.

2. If you experience blowback, this is likely due to the bolt being too loose on the front of the guide. By replacing the rear 2 bolt guide o-rings with O12 sized rings (included), any blowby is eliminated and friction is slightly increased. These factors bring the bolt back into time with the poppet and should eliminate blowback issues. You may find that the extra friction results in undesirably high pressure settings, in which case I would also recommend an accelerated break in with metal polish. (See Tip #3)
3. To break in o-rings to a perfect seal, apply some metal polish to the rings you're interested in. Then, cycle the parts back and forth by hand while twisting, for 2-5 minutes. The polish will turn black with the excess material ground out from the ring. It is crucial to then carefully remove the o-rings and wash both the rings and the parts thoroughly with soap and water. Lightly lube the o-ring grooves, and reinstall the shaved/polished rings. Lubricate as normal. This can be used in nearly any marker to give a "Pro-Tuned" feel.